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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/933,178	08/21/2001	Keun-Shik Nah	06192.0213.NPUS00	6439

7590 05/05/2004  
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EXAMINER

CHOW, DOON Y

ART UNIT PAPER NUMBER

2675

DATE MAILED: 05/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/933,178

Applicant(s)

NAH ET AL.

Examiner

Dennis-Doon Chow

Art Unit

2675

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_\_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (AAPA) in view of Sasuga et al. (6466282).

AAPA discloses a liquid crystal display device, comprising: dual bank type source driver PCBs (210, 220 Fig. 3) installed at top and bottom of a liquid crystal; a gate driver PCB (230 Fig. 3); three separate main PCBs (240, 241, 242 Fig. 3) arranged in a staple-shaped arrangement, wherein the main PCBs include two horizontal main PCBs which have a length more than one half of a liquid crystal panel (see Fig. 3) and a vertical main PCB (240); a timing controller mounted at the vertical main PCB (240); and FPCs (250, 280, 290 Fig. 3) for connecting the main PCBs to the source driver PCBs and gate driver PCB respectively.

AAPA does not disclose the staple shaped main PCBs being a single PCB.

Sasuga, in the same display field, teaches the use of a three pieces staple shaped (u shaped) PCB (col. 18, lines 54-58) and an integral staple shaped PCB (col. 19, lines 12-17).

It would have been obvious to one of ordinary skill in the art to substitute an integral staple shaped main PCB for AAPA's three pieces staple shaped main PCB. This would have been obvious because the control of the fabrication process of the device can be simplified due to the reduction of part number, taught by Sasuga (see col. 19, lines 12-17).

3. Claim 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (AAPA) in view of Sasuga as applied to claims 1-12 above, and further in view of Kimura et al. (6590553).

AAPA further discloses a first flexible printed cable for transferring the first source driving signal, and a second flexible printed cable for transferring the second source driving signal (250, 280; Fig. 3).

AAPA does not disclose dividing the display panel into four sections.

Kimura, in the same display art, discloses dividing a liquid crystal display panel into four sections (Figs. 5-6).

In light of Kimura, it would have been obvious to one of ordinary skill in the art to divide the display panel of AAPA into four small sections. By doing so, the speed of scanning the display panel increases rapidly because the size of the display panel is reduced into 4 small sections. Since now the column lines of the modified AAPA are divided into two sections of column lines, the display device of the modified AAPA inherently includes two the first flexible printed cables and two second flexible printed

cables for transferring the first and second source driving signals to the column sections.

***Response to Arguments***

4. Applicant's arguments filed April 16, 2004 have been fully considered but they are not persuasive.

It is not understand why applicant continuously agues that Sasuga does not qualify as prior. As it is indicated in the last office, Sasuga has a continuation date back to March 11, 1993. (See item # 63 of the front page of Sasuga). Therefore, Sasuga has a priority data back to March 11, 1993.

Applicant argues that the combination of AAPA and Sasuga does not disclose or suggest the claimed feature of "a staple shaped main PCB disposed on the liquid crystal panel; and a timing controller formed on the main PCB" because the "three pieces staple shaped (U shaped) PCB shown as PCB1 in Fig. 26 of Sasuga is driver circuit substrates. The examiner disagrees with applicant's argument. Sasuga teaches the use of a three-pieces U shaped PCB which can be substituted by a single piece U shaped PCB. By doing so that the control of fabrication process can be simplified and the connection cable between the PCBs can eliminated (col. 19, lines 12-17). Obviously, these features can be used in any PCBs. It does not have to limit to the driver circuit substrates.

Applicant cannot show non-obviousness by attacking references individually where as here the rejections are based on combination of references. In re Keller, 208 USPQ 871 (CCPA 1981).

***Conclusion***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis-Doon Chow whose telephone number is 703-305-4398. The examiner can normally be reached on 8:30-6:00, Alternate Monday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Saras can be reached on 703-305-9720. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.

D. Chow  
April 30, 2004

  
DENNIS-DOON CHOW  
PRIMARY EXAMINER